ATP Annual Meeting
November 16, 1999

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Outline

- ATP project overview
- Company background
- Status and timeline
- Future directions and challenges
- Summary

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ATP Project Overview

Area:	Photonics Manufacturing
Title:	Low-Cost WDM Optical Amplifier and Switch Manufacturing Technology
Period:	11/1/1998 to 4/30/2001
Total Project Cost:	$5,300,000
NIST Award:	$2,000,000

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Photonic Component Market: The View from 30,000 feet

- Insatiable demand for bandwidth
- Transition to all-optical networks
- Extension to metro and access applications
- Unit demand growing >100% per year

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Photonic Component Market: The View from Treetop Level

- Photonics lags electronics
- Hand-crafted by elves
- Supply-demand imbalances
- Scalability in question

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"Ultimately, it's a chip game."

Charlie Willhoit
JP Morgan
Electronicast 11/4/99

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GenOA's Goal

Bring to market a scalable photonic IC technology for optical communications based on a new class of semiconductor amplifier and switch building blocks.

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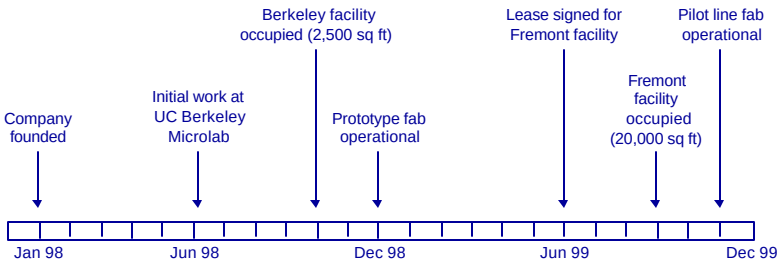
Timeline



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Wafer Fab Pilot Line

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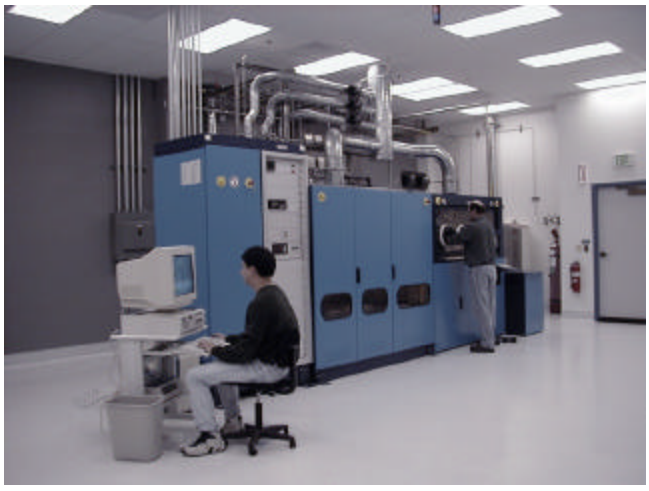
MOCVD Lab



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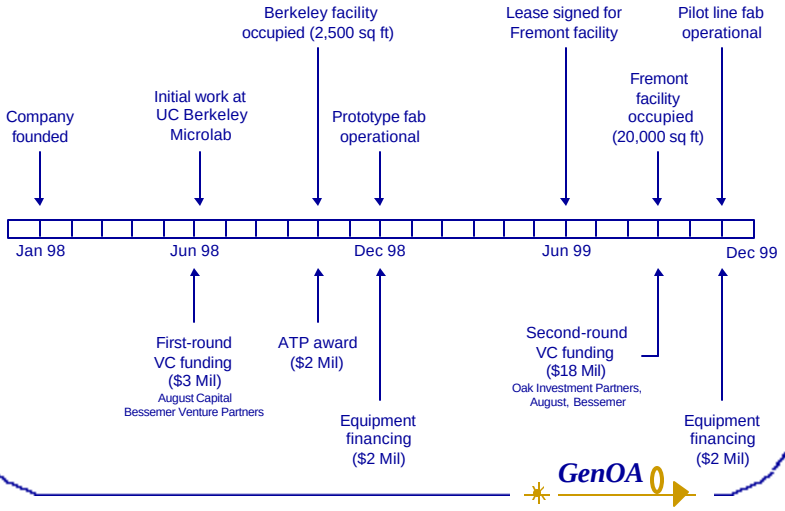
Timeline



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Photonics and VC's

- Communications and Internet driving VC investments ($7.7B so far in 1999)
- VC's are already seeing big payoffs in optical networking (Ciena, AFC, Cerent, Sycamore...)
- $1B funds now being raised, investing big chunks
- Photonics no longer viewed as just a niche
- Balancing risks: technical, market, financing, team

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Future Directions and Challenges

- Shaking out and qualifying pilot line manufacturing
- Launching first-generation component products
- Scaling to higher functionality
- Packaging is still (and always will be?) the ultimate limitation

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Summary

- Optical communications is booming (customers and investors)
- Many opportunities for innovation at the component level
- Photonic IC technology can help break through the functionality-performance-cost barrier
- ATP and VC funding are highly complementary

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